



POL-200 Semiautomatic Polarimeter

Instruction Manual

Introduction

Thank you for selecting the POL-200 semiautomatic polarimeter. This user's manual provides a step-by-step guide to help you operate the instrument, please carefully read the following instructions before use.

Unpacking the Instrument

The following list describes the standard accessories of the instrument. After the unpacking, please check all accessories are complete. If any are damaged or missing, please contact nearest distributor.



Test tube 100mm



Test tube 200mm

Power On/Off

- Plug in the power supply and press ON/OFF key to turn on the polarimeter, the display shows the model of instrument. After a few seconds, the display briefly shows “Wait for light source to stabilize”, the default user interface will be shown on the screen.

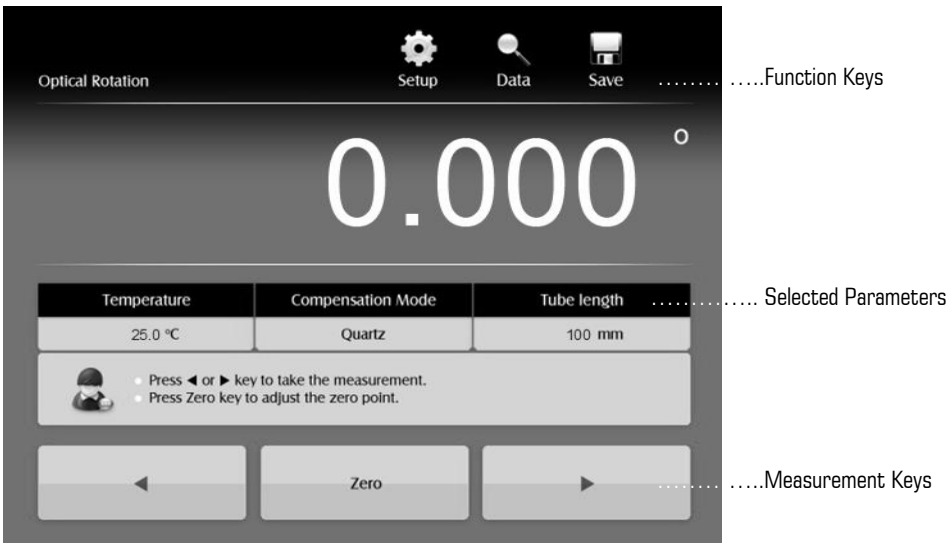


- Press ON/OFF key again, the instrument will automatically turn off. DO NOT pull out the power plug from the power source if the instrument is not completely turned off, that may cause the zero-point offset.

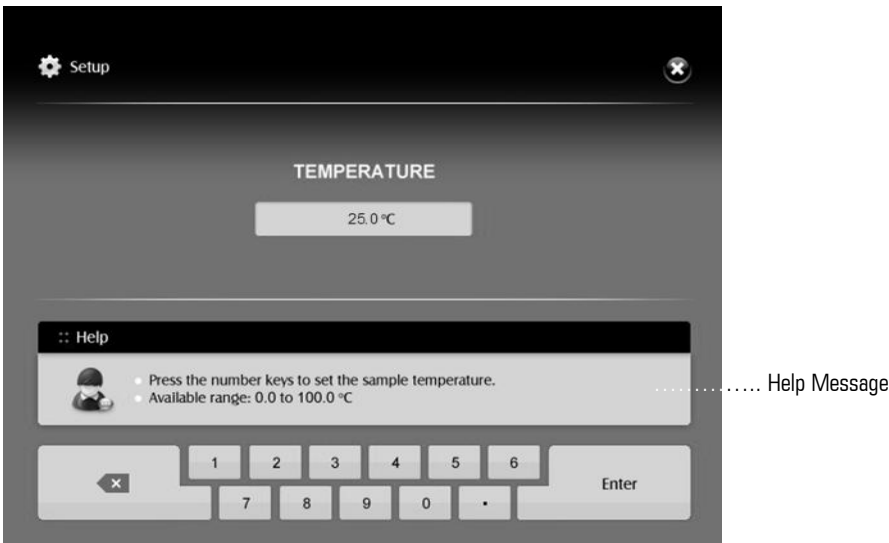
Display

POL-200 polarimeter is equipped with the 5.6 inch touch screen that used to show measured value, function keys and help message. In the measurement and setting modes, the instrument will show different user interfaces.

Measurement Mode:



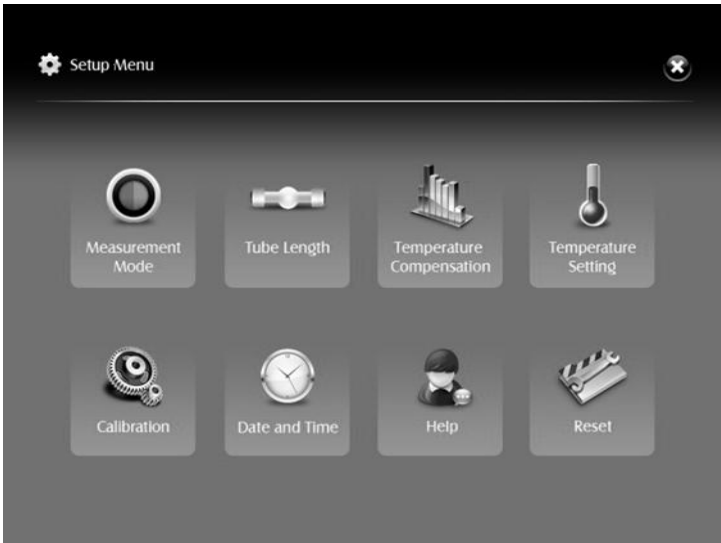
Setting Mode:



Help message on screen are very useful in most cases, you are able to easily operate the instrument follow these tips.

Setup Menu

POL-200 semiautomatic polarimeter contains an integrated setup menu that allows you to customize each displayed option to meet measurement requirements. Settable parameters include the following options.



PARAMETER	OPTION	DESCRIPTION
Measurement Mode	<ul style="list-style-type: none">▪ Optical Rotation▪ Specific Rotation▪ Concentration▪ International Sugar Scale	Select your desired measurement mode.
Tube length	<ul style="list-style-type: none">▪ 100mm▪ 200mm▪ Custom	During the Custom mode, the instrument acceptable setting ranges from 0.0 to 220.0mm.
Temperature Compensation	<ul style="list-style-type: none">▪ Enable (Default)▪ Disable	Temperature compensation allows the instrument to run at ambient temperature but produces readings as if the system was running at 20°C. During the Specific Rotation, Concentration and Sugar Degrees modes, the instrument will automatically enable the this feature.
Concentration	---	Sets the concentration of sample for measurement of specific rotation
Specific Rotation	---	Sets the specific rotation of sample for measurement of concentration
Temperature Setting	Range: 0.0 to 100.0°C	Calibrate the current temperature value
Calibration	1 to 3 points	Using the standard tubes to calibrate the polarimeter
Date and Time	---	Sets the date and time of instrument

SETTING THE PARAMETER:

1. During the measurement mode, click the Setup icon to enter the setup menu.
2. Select the parameter you need to set.
3. Press ◀▶ key to select an option or press the numeric keys to input the setting value.
4. Press Enter key to confirm. Setting is completed.

Prior to Use

Rotate the focus knob on front panel until visual field became legible.

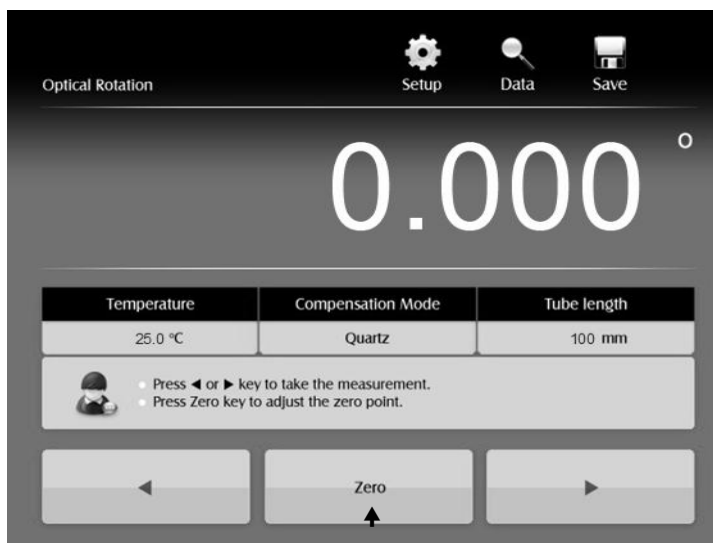
Focus Knob.....

**Measurement**

POL-200 polarimeter can use for measuring the 4 parameters, including the optical rotation, specific rotation, concentration and International Sugar Scale. Click the Setup icon to enter the setup menu, press Measurement Mode icon to select desired measurement mode. When the setting is completed, the instrument will automatically return to selected measurement mode.

1. ZERO CORRECTION:

- 1.1 Take a clean empty tube and place in the sample chamber. Note, the bubble trap is upward.
- 1.2 If the visual field appears the differences in apparent brightness, press Zero key to enter the zero-point correction mode.



1.3 Press ◀ or ▶ key to adjust the instrument until visual field appear the uniform brightness.



1.4 Press Enter key to confirm, the instrument returns to measurement mode. Zero correction is completed.

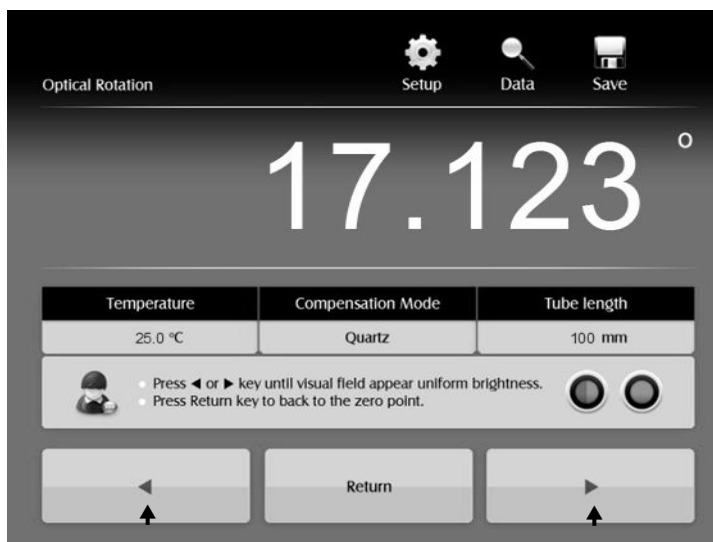
2. MEASUREMENT:

2.1 Take out the tube from the sample chamber. Unscrew the cap, remove the sealing ring and glass disc.

2.2 Pour sample solution into the tube, screw on the tube cap. Wipe away the drops of water on glass disc.



2.3 Place tube into the sample chamber. Press ◀ or ▶ key until visual field appears uniform brightness. Record the measured value.



2.4 Press Return key, the instrument returns to the zero-point automatically. Measurement is completed.



Press and hold ◀ or ▶ key for 8 seconds, the instrument will enter auto-run mode. Press ◀ or ▶ key again, the instrument stops run.

Storing the Measuring Value

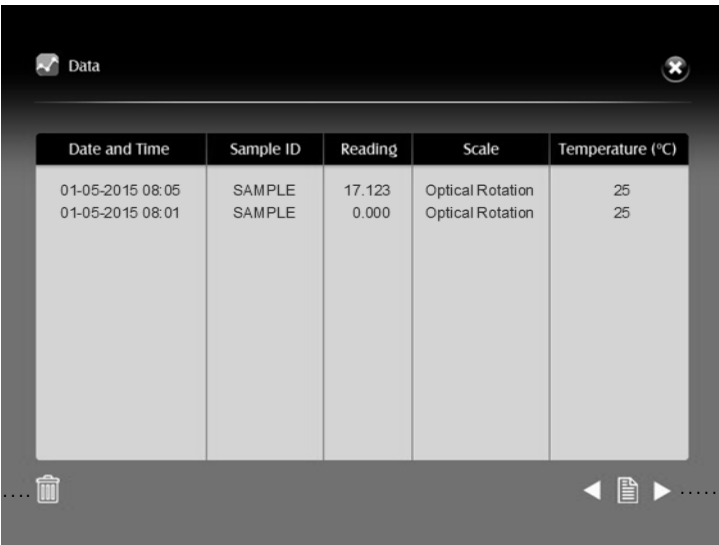
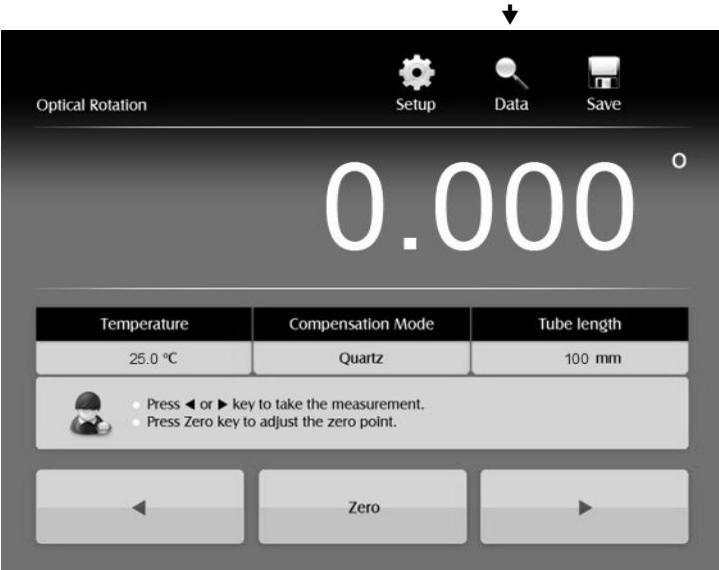
1. During the measurement, click the Save icon, the screen shows a dialog box and wait for entering the sample name.



2. The instrument default sample name is "SAMPLE". If you need to modify current name, press ◀ key, then press the letter keys to enter new name. Press Enter key to confirm, the measured value will be saved into the memory.

Recalling the Stored Data

1. Click the Data icon during the measurement mode, the screen shows the stored measured values.



2. Press Page key, the screen will toggle to next page.

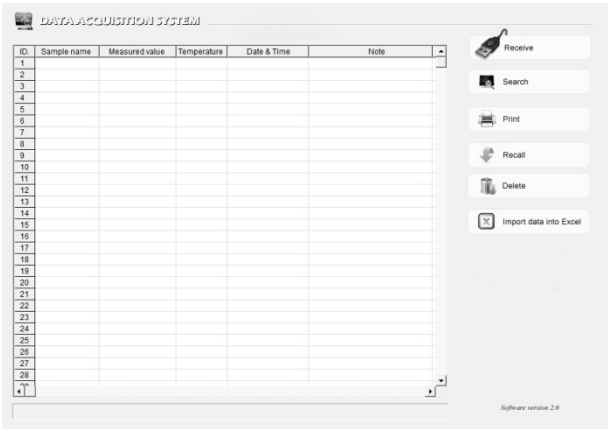
3. If you need to delete stored data, press Delete key, all of the data will be deleted. WARNING: Once the data is deleted, cannot be recovered.

Communication Software

Bante Instruments provides a free DAS data acquisition system that can be used to transfer stored data. You can download this software from our official website (www.bante-china.com).

RUNNING THE SOFTWARE:

Click the Data Acquisition System icon on the start bar; the DAS splash screen appears for few seconds and then the application starts.

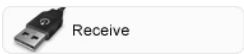


DAS system includes 6 function buttons, the following table describes the function of each button.

BUTTON	FUNCTION
Receive	Receive the stored data from polarimeter
Search	Search the data by sample name or time
Print	Print the uploaded data
Recall	Display all uploaded data
Delete	Delete the selected data
Import data into Excel	Create the Excel data file

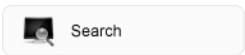
RECEIVING THE STORED DATA:

Connect the USB cable to polarimeter and computer (Communication port: COM1). Click the Receive button, the stored data in instrument will automatically send to computer.



SEARCHING THE DATA:

If you would like to search a specific measured value from the database or uploaded data, click the Search button, the screen will show a search criteria dialog. Available search criteria include the time and sample name. After selecting or entering the search criteria, click the OK button, the screen will show all qualified records.



Search

Search Criteria

☒ Time ☐ Sample Name

Start Time: _____
Format (yy-mm-dd hh:mm)

2015 - 1 - 1 0 : 00

End Time: _____

2015 - 1 - 1 0 : 00

OK Cancel

Search

Search Criteria

☐ Time ☒ Sample Name

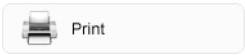
Sample Name: _____

Please input the sample name

OK Cancel

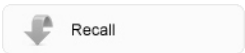
PRINT THE REPORT:

If you would like to print current data, click the Print button, the printer will output data sheet.



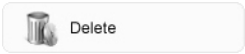
DATA RECALL:

DAS data acquisition system has a large database used to store the all uploaded data. If you need to view previous data, click the Recall button, the screen will show all data in the database.



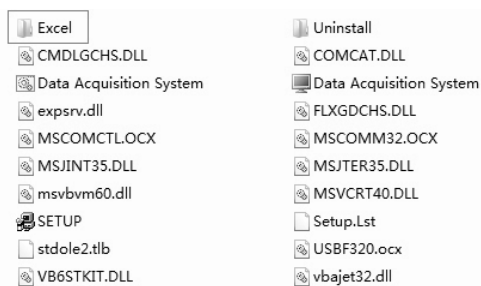
DELETE THE DATA:

If you need to delete the certain data, click the data field, then click the Delete button. Note: Once deleted, the data cannot be recovered.



CREATE THE EXCEL DATA FILE:

When the transfer is complete, click the "Import data into Excel" button, the measured value in the data sheet will be converted to Excel file. You can follow the path below to find the Excel file: C:>Program Files>Data Acquisition System>Excel

**NOTE:**

1. The software is run in operating system Windows XP. If your system is Windows 7, please using the file "CP210x_VCP_Windows" to update your device manager.
2. If the computer displayed "Error" during the first run, please open the windows "Run" command, then enter the command below in text input field. regsvr32 "c:\windows\system32\DAO350.DLL"
3. Make sure your instrument is connect to communication port "COM1", baud rate: 9800.

Calibration

POL-200 semiautomatic polarimeter supports 1 to 3 points calibration, but calibration is not required unless the measured value appeared serious deviation.

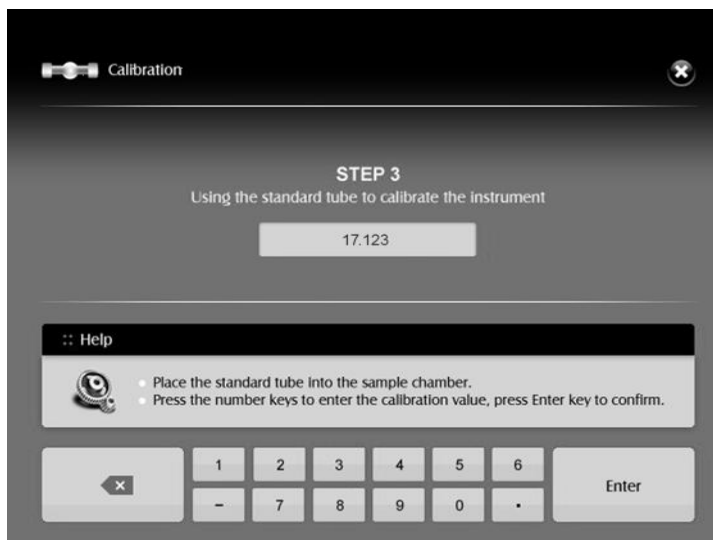
1. Click the Setup icon during the measurement mode, the screen shows the setup menu.
2. Click the Calibration icon, the instrument enters the calibration mode.
3. Follow the displayed guides to select the number of calibration points, press Enter key confirm.



4. Make sure that remove the tube from the sample chamber.
5. Press ◀ or ▶ key until visual field appears uniform brightness, press Enter key to confirm. Zero-point calibration is completed.



6. Place the standard tube into the sample chamber, press number keys to enter calibration value, press Enter key to confirm.

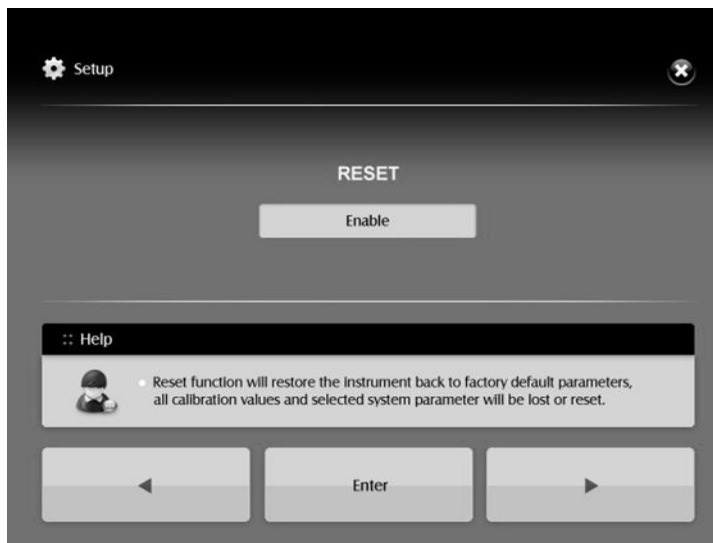


7. Press ◀ or ▶ key until visual field appear uniform brightness, press Enter key to confirm. The instrument returns to zero-point automatically.
8. If you selected three points calibration, please repeat above steps until screen shows "Calibration is completed". The instrument will return to measurement mode automatically. Calibration is completed.

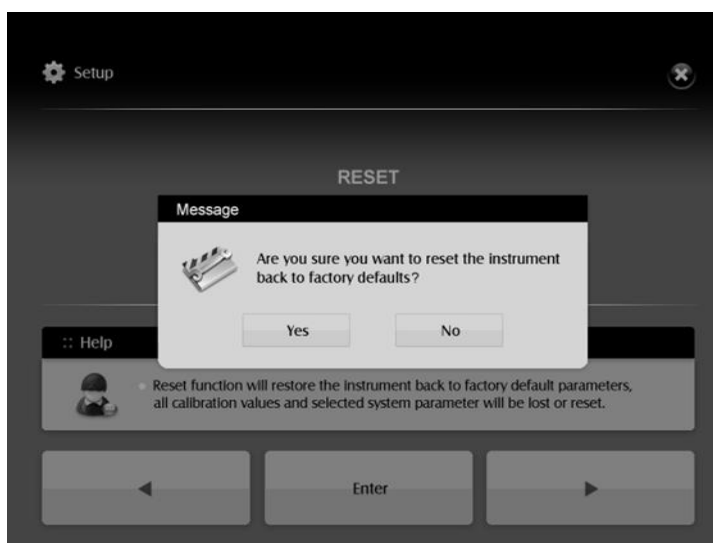
Restore Factory Settings

If the instrument goes wrong during the use, you are able to follow the steps below to restore factory settings. Reset function will restore the polarimeter back to factory default parameters, all calibration values and selected parameter will be lost or reset.

1. Click the Setup icon to enter the setup menu.
2. Click on the Reset icon, and press ◀ or ▶ key to select the "Enable" option.



3. Press Enter key, then press Yes key. Reset is completed.



Specifications

Model	POL-200
Measurement Modes	Optical Rotation, Specific Rotation, Concentration, International Sugar Scale
Measuring Range	$\pm 90^\circ$, $\pm 130^\circ\text{Z}$
Accuracy	$\pm 0.02^\circ$, $\pm 0.05^\circ\text{Z}$
Resolution	0.005°
Wavelength	589nm
Light Source	LED, Interference filter
Test Tube	100 or 200mm
Temperature Range	$0\sim 100^\circ\text{C}$
Temperature Accuracy	$\pm 0.5^\circ\text{C}$
Memory	Stores up to 100 data sets
Output	USB Communication Interface
Language	English
Display	5.6 inch TFT touch screen
Power Requirements	AC 220V/50Hz
Dimensions	550(L) \times 300(W) \times 220(H)mm
Weight	7.5g

Hazardous Substance Statement

Bante Instruments is committed to the reduction and eventual elimination of all hazardous substances in both the manufacturing process and finished products we supply. We have an active manufacturing and procurement program to minimize and eliminate the use of harmful heavy metals such as cadmium, lead, mercury and the like. New technologies and design parameters are also promoting these efforts and we expect to have little or no such materials in our product in the coming years. We welcome our customer suggestions on how to speed up these efforts.



Warranty

The warranty period for instrument is 2 year from the date of shipment. Above warranty does not cover light source. For more information, please contact nearest authorized distributor.



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